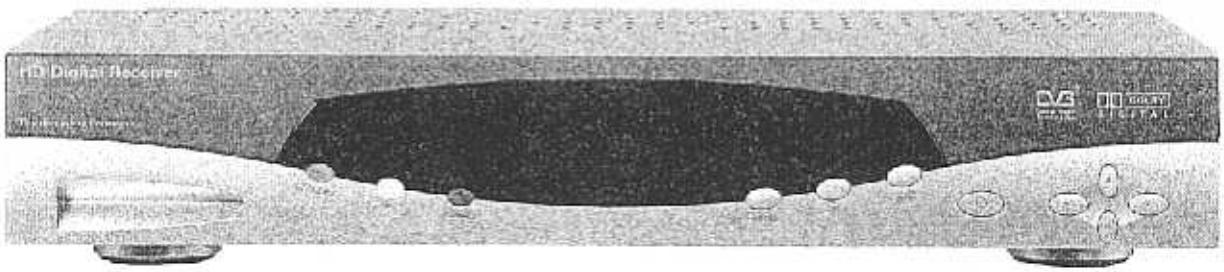
HD Digital Receiver

QTR2140



Operating Instructions

Distributed by:

Panasonic Australia Pty Limited

ABN 83 001 592 187

Safety Always Comes First

This QTR2140 HD Digital Receiver is manufactured according to international safety standards. In order to obtain the best operation results, please read the entire manual, as you will be instructed on how to handle the equipment carefully and safely. While installing, if you discover equipment failure or if you have doubts about the installation, handling, or safety of the STB please contact your Service Provider.

A Few Words about Cautions:

CAUTION TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER OR BACK. NO USER-SERVICEABLE PARTS INSIDE. REFER TO QUALIFIED SERVICE PERSONEL.

No naked flame sources, such as lighted candles, should be placed on the apparatus

This symbol is intended to alert the user to the presence of non-insulated dangerous voltage with the product's enclosure that may be of significant magnitude to constitute the risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

DO's and DON'Ts

DO's

- Avoid exposing the equipment to direct sun rays, excessive heat and moisture, as they will damage the receiver.
- Prevent the equipment from overheating. Sufficient ventilation is important. Leave adequate space between the components.
- Unplug the Receiver; if anything falls or water spills into the unit, have an authorised technician check the unit.

DON'Ts

- Install the Receiver outdoors.
- Install the Receiver in a closet.
- Place any objects on top of the ventilation vents.
- Place liquid-filled containers of any type on the top, which could spill on the unit.

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1 Introduction

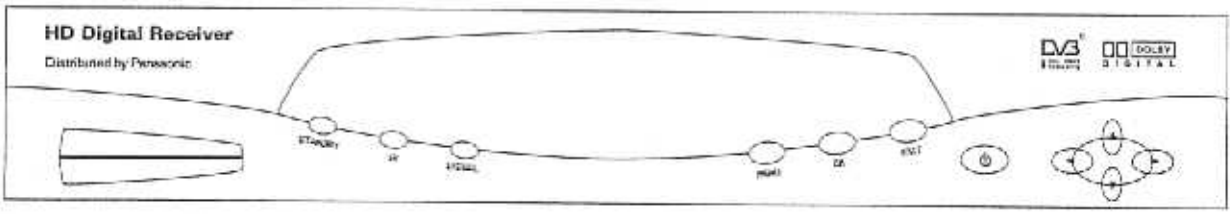
This User's Manual is the GUIDE to your receiver. In it you shall find comprehensive descriptions to familiarise yourself with all the functionalities with which your receiver is equipped. We strongly advise you follow the instructions in this manual. Once you become acquainted with the operations of your receiver you will only need this manual for reference.

1.1 IMPORTANT: First time Installers

IMPORTANT: For first time installers, please read Section 4, "Installing Your Receiver", to learn the basics of connecting your receiver to other A/V equipment. Once you have completed the setup, go to Section 6.3,"Preference", to select various system settings according to your personal preference, and 6.4, to select region for correct current time and then "Advanced settings", to conduct channel search.

2 The Receiver

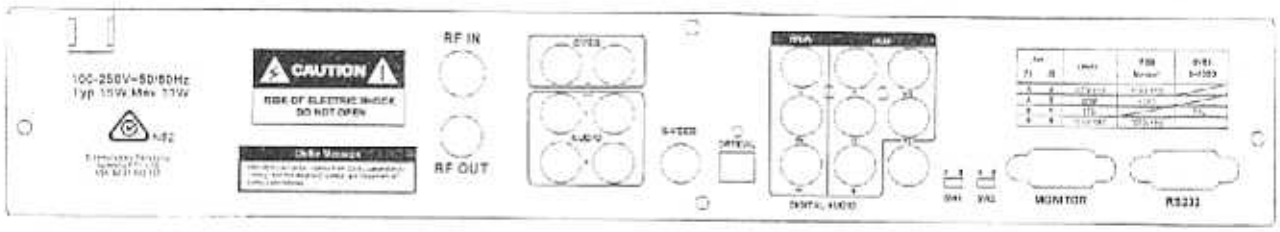
2.1 Front Panel



- **(Power Button)**: Turns the Receiver On / Off (Standby mode).
- **EXIT Button**: To return to the previous menu from the sub-menus.
- **OK Button**: To accept selection of choices.
- **MENU Button**: To open the "Main" OSD.
- **Display**: Shows channel number when the box is activated, or current time (in the form hhmm) when the box is in standby mode.
- **Front Panel Arrow Buttons**: ▲/▼ buttons to select channels or settings within the menus. ◄/► buttons for changing sound volume or selecting desired settings within the menus.
- **Stand-By Indicator (LED)**: Lights red in Stand-By mode. When the Receiver is working the LED becomes green.
- **Infrared (IR) Indicator (LED)**: The red LED flashes, indicating the box has received a command from the remote control.

- **Signal Indicator (LED)**: When a signal of a channel is successfully acquired the yellow LED will light up.

2.2 Rear Panel



- **AC Power Mains**: (100 - 250V~; 50/60 Hz), typical 15W and max. 33W.
- **RF In**: For connection to cable from outdoor terrestrial antenna.
- **RF Out**: For connection to your TV antenna IN or VCR RF IN.
- **S-Video**: Y/C component video for connection to TV.
- **CVBS**: Two composite video outputs for connection to TV, VCR or other A/V receiver.
- **AUDIO**: Two sets stereo audio outputs for connection to TV, VCR or other A/V receiver.
- **YPbPr**: Y/Pb/Pr component video for connection to TV.
- **RGB**: R/G/B/HS/VS component video for connection to TV or monitor.
- **Coaxial**: Digital Audio output by coaxial.
- **Optical**: Digital Audio output by optical.
- **Serial Port (RS232)**: For system maintenance.
- **Monitor**: R/G/B video by D-sub socket for display with such connector interface.
- **SW1/SW2**: Switches for video output mode selection. Selection options are listed in the table.

2.3 Box Contents

The box that carries your Receiver should also contain the following items:

- Remote Controller
- Two batteries (AAAM Size)
- RCA video cables (one yellow/ white/ red, the other red/ green/ blue)
- User's Manual

3 The Remote Controller

3.1 Preparing the Remote Controller

- Remove the cover of the battery compartment (on the back of the handset)

- Insert 2 AAA (1.5V) batteries. While inserting, observe the + and – markings indicated inside the battery compartment.
- Replace the cover
- Test the remote controller by pressing any key and check if the IR-LED (Red) on the front panel of the receiver flashes.

3.2 Control Panel

- : To turn your STB on/off (standby mode)
- Number (0~9) keys: To select channels directly and other commands.
- : To toggle between present and previous channels
- : To enter the service navigating channel (Mosaic channel). Such channel might not be available if not being sent by broadcaster
- GUIDE: To obtain a list of programs on available channels. This information is only shown if your Service Provider transmits program information
- (Red): Application defined function key
- (Green): Application defined function key
- (Yellow) Application defined function key
- (Blue): Application defined function key
- : Aspect ratio, to change to 16:9 or 4:3 mode (only for CVBS and S-Video output)
- : To turn on channel list
- : To turn on/off sound (only for Analogue Audio Output)

- : To toggle for selecting desired audio sound track
- VOL
For Volume adjustment (only for analogue audio output)
- CH
For changing channels
- : To turn on/off teletext
- TV: To toggle between TV and Radio service
- EXIT: To go back one level in the menus.
- Buttons: To move in up/down directions in the menus. To select TV and Radio channels
- Buttons: To move in left/right directions within the menus
- OK: To confirm choices and selection of highlighted item
- MENU: To display the "Main" Onscreen Display (OSD)
- : To call up the program information plates and extended channel information in program guide menu

4 Installing Your Receiver

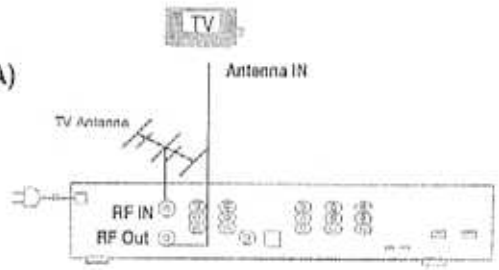
4.1 Connections

The following illustrations show some examples for connecting this HD receiver. Select the connection that is best suited for your needs. Many other connections may be possible when optional devices such as RF cable splitters are included in your system. These devices may cause signal degradation and, if too many are used, poor quality picture and sound may result. RGB and Monitor connectors can not be used at the same time.

Terrestrial antenna/cable connection

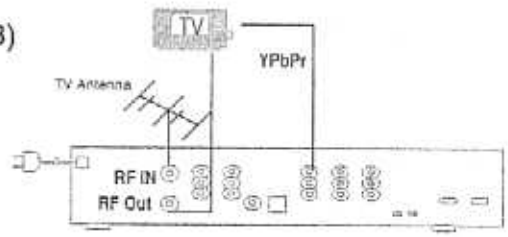
Connect the TV antenna cable to the HD receiver RF IN connector. Also connect the cable between your TV Antenna IN and RF Out connector on the rear of the receiver. This connection allows your TV set to receive normal analogue programs. (Refer to A)

(A)



Adjust SW1 and SW2 according to the format supported by your TV, and it contains four modes configuration: AA, AB, BA and BB. (Refer to display output configuration table on the rear panel of your receiver). Under each mode, there are several choices for connection.

(B)

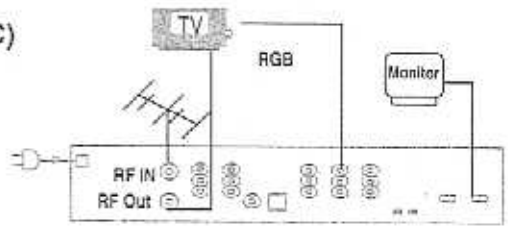


AA/AB/BB: HD Mode

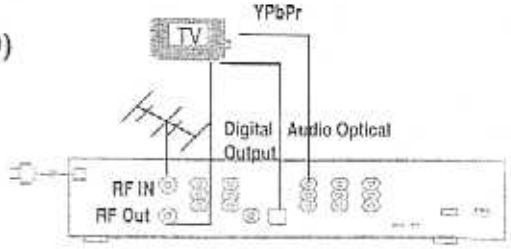
Video:

- Connect the YPbPr component video output socket on your receiver to TV YPbPr component video input. Be sure to match the colors on the RCA sockets with the colored plugs. (Refer to B)
- Connect the RGB component video output RCA socket to Monitor or TV. Or you can choose D-sub connector (monitor) on your receiver to monitor

(C)



(D)

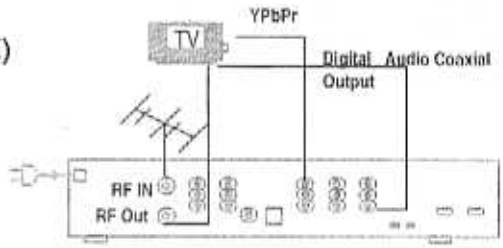


or other display with such connector interface. (Refer to C)

Audio:

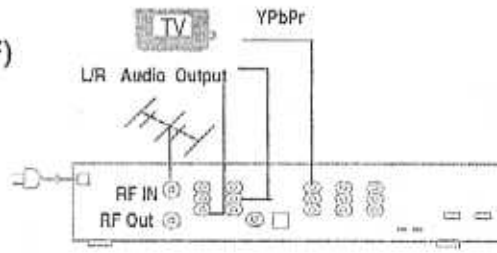
- If your TV set is equipped with Dolby Digital and/or MPEG audio decoding capability, you may connect the Digital Audio output by Optical or Coaxial RCA socket on your receiver to TV Digital Audio input Optical or Coaxial RCA socket. (Refer to D and E) You may also connect the digital audio output to your A/V receiver assuming it is capable of decoding Dolby Digital /MPEG digital audio stream.

(E)



- If your TV set and/or A/V receiver does not support Dolby Digital/MPEG decoding, you need to connect L/R Audio output RCA sockets on your receiver to stereo L/R Audio inputs of TV set and/or A/V receiver. (Refer to F). If your A/V receiver supports Dolby Pro Logic decoder, you can switch ON "Downmix-Surround" function.

(F)

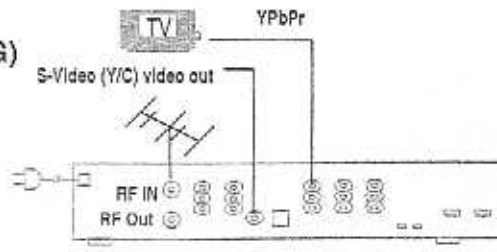


BA: SD Mode

Video:

- Connect the YPbPr component video output socket on your receiver to TV YPbPr component video input. Be sure to match the colors on the RCA sockets with the colored plugs.
- Connect the CVBS composite video output socket on your receiver to TV/VCR CVBS video input socket.
- Connect the S-Video(Y/C) component video output socket on your receiver to TV S-Video input socket. (Refer to G)

(G)



Audio:

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- If your TV set and/or A/V receiver does not support Dolby Digital/MPEG decoding, you need to connect L/R Audio output RCA sockets on your receiver to stereo L/R Audio inputs of TV set and/or A/V receiver. (Refer to F). If your A/V receiver supports Dolby Pro Logic decoder, you can switch ON "Downmix-Surround" function.

  Note: We suggest you to set volume to maximum when recording the program.

4.2 Switches for Video Output Mode Selection

Table 1. Display Output Configuration Table

SW (1)	SW (2)	YPbPr	RGB Monitor*	CVBS S-Video
A	A	1080i (1125)	1080i (1125)	
A	B	576P	1152i	
B	A	576i		PAL
B	B	1080i (1250)	1080i (1250)	

*Only one of RGB and Monitor output can be used at the same time

The display output table has four modes, SW1 and SW2 on the rear panel are for mode selection.

When using a HD monitor, which supports Y/Pb/Pr or R/G/B/HS/VS component video input, you should turn the mode selection switches to AA, AB or BB. It depends on which resolution your HD monitor can support.

When using a conventional TV, which supports Y/Pb/Pr, S-Video component video input or CVBS composite video input, you should turn the mode selection switches to BA.

If you use a Monitor or plasma display, turn the mode selection switch AA, AB or BB.

5 Operating Instructions: Knowing your basic controls

To become acquainted with the operations and functions of your receiver, you must know how to use the control buttons on the Front Panel and the Remote Control. The following segment is an introduction to features that you will most commonly notice or use.

5.1 Switching On Your Receiver

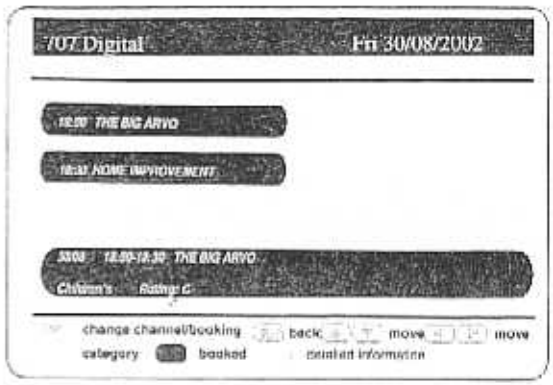
Before you switch on your receiver please make sure the power mains is plugged into a power outlet. Remember that as long as the power mains remains plugged into your receiver, it will be in a constant "STANDBY" mode.

Turn on your TV and other connected audio/video equipment. Switch on your receiver by pressing either the ⏻ button on the remote control or ⏻ on the front panel. While the receiver is in normal viewing mode, the green LED lights up. When not using the receiver, put your equipment in the "STANDBY" mode by pressing either one of the ⏻ / ⏻ buttons again. When the red "STANDBY" LED lights up, it indicates the receiver is in "STANDBY" mode. The front panel will show current time.

5.2 Information Plate

The Information Plate (I-Plate) shows information about the program that you are currently watching. The information plate appears shortly, whenever you switch to a new channel or when there's problem with signal reception. To show the information

plate, press the i button. Press EXIT to remove the I-Plate from the screen.



Program Guide

The Program Guide is a user-friendly feature, which enables you to select, book, and "peek in advance" programs. To enter into the Program Guide, press GUIDE. In the Program Guide on screen display, program schedule is listed in chronological order.

Section 6.1 of your User Manual will instruct you to use the Program Guide efficiently.

5.3 Changing Or Selecting Channels

There are several methods to change or select channel. You can either use the front panel or the remote control buttons.

The followings are methods you can choose from:

- Select channels from the Mosaic interface. You have to first browse the Mosaic channel by pressing the Mosaic button on remote control.
- Press Channel ▲/▼ on the remote control (channel switches according to favourite channels setting).
- Directly enter a channel by using the number keys on the remote control.
- Use ▲/▼ to change channel. Unlike Channel ▲/▼ control channel movement is not aligned with favorite channels setting.
- Use to toggle between current channel and previously watched channel.

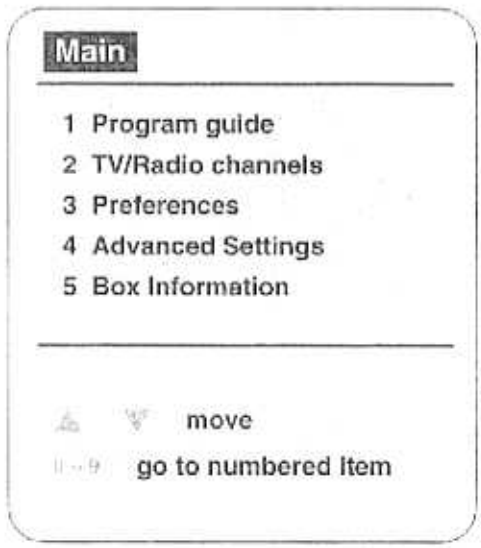
5.4 Audio Selection

The program you view may be accompanied by more than one audio soundtrack. These soundtracks may be of different language or different type (Dolby Digital, MPEG-1 or MPEG-2). You may press the audio button to select your desired soundtrack. When you first press the button, the Audio OSD is shown on screen listing all available soundtracks. The currently played track is highlighted. This OSD will disappear in a short time, unless you press the Audio key again to select another track before this OSD disappear.

6 Using The Main

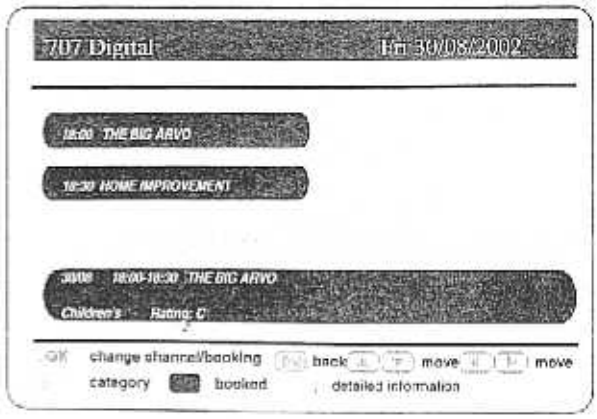
Your receiver comes with a directory of features or the Main OSD. The Main is your gateway to customising many of the features offered by your receiver. To access the Main OSD, press the MENU button. The Main feature comprises the following categories of services:

1. **Program Guide** provides access to:
   i. Programs Schedule
   ii. Programs Categorisation/Type
   iii. Booked Programs
2. **TV/Radio Channels** allows you to program:
   i. Program Favourite channels
   ii. Channel locking
   iii. Channel deletion
3. **Preferences** allows you to access
   i. Screen Format
   ii. Display type
   iii. MPEG Audio Level
   iv. Audio Language Priority
   v. Default Audio Mode
   vi. Digital Audio
   vii. Downmix-Surround
   viii. Audio Balance
4. **Advanced Settings** allows you to program:
   i. Parental Guidance
   ii. Change Password
   iii. Install
   iv. Restore Default Settings
   v. Select Sates
5. **Box Information** to display the Software Version number and Serial ID of your receiver.



6.1 Program Guide

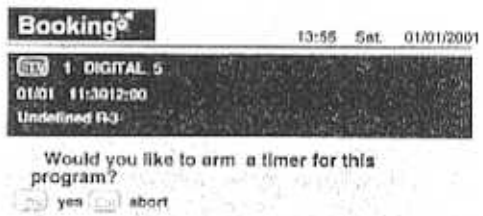
By choosing the Program Guide banner on the Main OSD, the Electronic Program Guide (EPG) appears. The EPG is, in classic terms, a TV Guide, except it is presented on your TV screen! The EPG allows you to peek in advance, depending on services provided by your Service



Provider, a few days or up to one week of TV programs and program information. By using the arrow keys on either your receiver or the remote control, you can roam the EPG to access various channels and programs.

In the grid highlight the program by pressing the arrow buttons. Once you have selected the desired choice (the highlighted block will appear in a different shade), press i to view the detailed description of the program. If the broadcaster does not transmit detailed description of it, the text "No descriptions available" will appear. If you wish to see what programs are broadcasted on other channels, use the CH button to access the list of all programs shown on the current and next days.

If you wish to book a future program, highlight any program (beyond the current time frame) by using the arrow buttons, press OK to confirm your selection. The "Booking" window will appear allowing you to book the program. Press OK to confirm the booking, or EXIT to exit the Booking window. For more information on the Booking feature, go to "Booked Programs" to view the instructions. Note that if you highlight a program currently broadcasted on another channel and press OK, the program is not booked. Instead, the receiver switches to that channel directly.

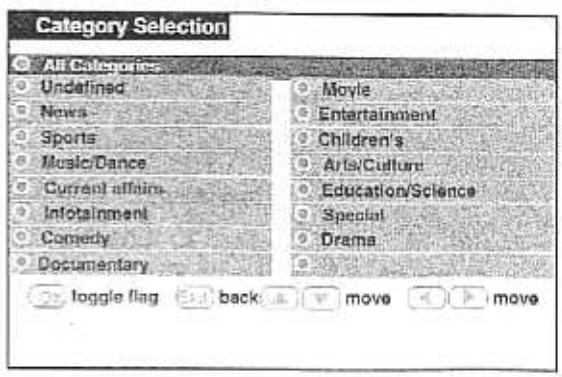


Coloured "*Hot Keys*"

On the Program Guide window, you will notice four coloured hot keys they provide you instant access to various services.

- **Category Selection**

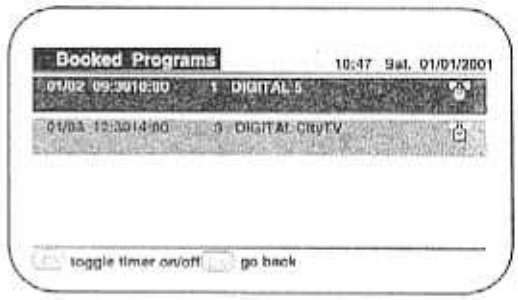
  This special feature enables you to screen out your preferred programs by program Category or type. You can gain access to this feature by pressing the button (yellow). Use the arrow buttons to highlight the categories, and press OK to select or unselect any of the categories. By default, the item "All



Categories" is highlighted. You have to de-select that item before selecting specific program type(s). As you select some categories and go back to program guide menu, only programs of the selected categories will be visible.

- **Booked Programs**

  To review what programs are being booked, press (blue) to call up the Booked Programs OSD. To cancel or re-engage the booking, press OK. If the symbol (the alarm clock) disappears, then the timer is disengaged. But, the program information will remain in case you wish to rebook the program. The cancelled program will not be displayed the next time this window reappears.



6.2 TV/Radio Channels

You may highlight any channel in the list by pressing up/down keys, then press OK to view that channel directly.

This feature allows you to *personalise* your list of favorite channels, TV or Radio. Highlight a channel by using the ▲/▼ buttons, then press the "hot key" (red) to select or unselect. When a channel is selected a ♥ symbol will appear in the bar to indicate the favorite status. When you are changing channels using the CH keys, the receiver jumps to the next/previous favorite channel, and skips other channels.

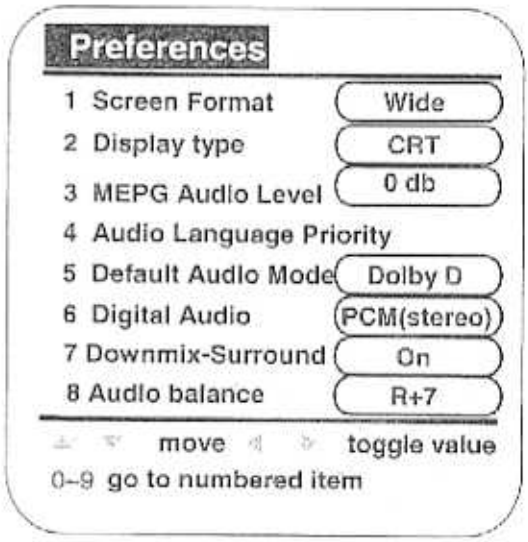
If you wish to lock or unlock any channel, simply press the button (green) to do so. When a channel is locked a 🔒 symbol will appear to indicate the locked status. Whenever you wish to watch the locked channel you will be asked to enter the password. If you wish to delete any

channel, press the ▭ button (yellow) and a "X" sign will be shown on that channel. You may un-delete that channel by pressing the same key again. If one or more channels are deleted, on leaving the TV/Radio channels menu, user will be asked to confirm removal of those channels. Once you confirm removing them, you cannot un-delete them. The only way to recover those deleted channel is to do "Install" again. Please use this feature very carefully.

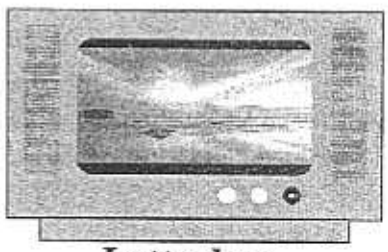
To toggle between the TV (TV) and Radio (♫) lists, press the TV button.

6.3 Preferences

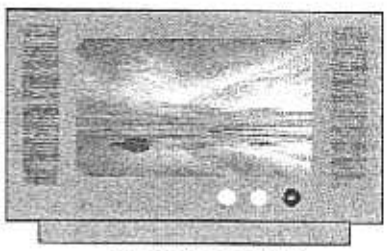
From here, you may adjust various settings, all according to your personal preferences, such as language priority, audio mode, TV type, Downmix-Surround and others. Note that some settings in this segment are related to A/V equipment, which you are connecting. Instructions on how to set each item are presented below.



1. **Screen Format**
   If your TV set is in 4:3 format and the transmission of a program happens to be 16:9, the **Normal/Letterbox** mode will give you a complete picture, but black areas will appear at the top and bottom.


Letterbox

   Or you can choose the **Normal/Center Cut** mode to play the program in a full-screen format. But information on the left and right sides may be cut off.

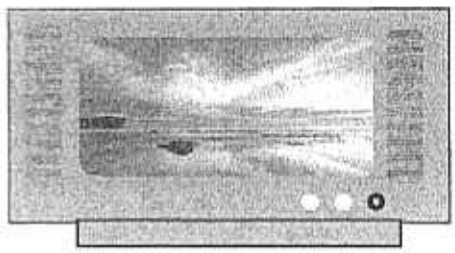

Center Cut

   If your TV set is in 16:9 format, then set the mode at **Wide**. If a program happens to be in 4:3, black areas will appear at the left and right of the screen in order to present the picture in a correct aspect ratio.

Note that this selection only applies to CVBS output.

2. Display type

This menu contains three options: CRT, Plasma (low delay), and Plasma (high delay). Normally, different display equipment may have different delay in picture which may cause slight problem in lip sync. This feature allows you to use ◀/▶ to select your choice according to your actual video display equipment, in order to compensate this delay. If your display is TV or CRT, choose CRT. If your display is Plasma, choose Plasma (low delay) or Plasma (high delay) depends on which choice appears to provide best performance in lip sync.



16:9 Wide

3. MPEG Audio Level

From here you my adjust MPEG audio level from –12 db to 0 db. This adjustment is only for MPEG input and system will detect MPEG input automatically.

4. Audio Language Priority

From here you may prioritise languages for audio output. To prioritise a language, press OK to highlight a language choice. Move the choice up or down by using the arrow buttons. Press OK again to confirm the priority.

Note that this priority applies when you view new services. That is, the receiver will select available audio soundtrack with highest priority as the default soundtrack. However, you may select any available soundtrack at your own will for each channel, and that selection will not be affected by your choice of language priority.

5. **Default Audio Mode**
   The Audio mode allows you to adjust the audio setting. You may choose Dolby Digital, MPEG1 and MPEG2. Use ◀/▶ to select your choice. Like Audio Language Priority setting, this audio mode setting determines your first choice of soundtrack based on audio mode, and you may select any soundtrack channel by channel, regardless of the audio mode setting made in this menu.
   If the default Audio Mode is Dolby Digital, and the input signal only contains MPEG-2, the default Mode will change to MPEG-2 automatically. If the Audio Mode is set to Dolby Digital, the QTR2140 will automatically select a Dolby Digital soundtrack when it is available. We especially recommend this selection if you will be connecting your QTR2140 to a TV or A/V receiver then can decode Dolby Digital (look for the DOLBY DIGITAL logo) or Dolby Surround Pro Logic (look for the DOLBY SURROUND PRO LOGIC logo).

6. **Digital Audio**
   For each Audio Mode, you can have different Digital Audio Selection Options. (Refer to Table2 Digital Audio Selection Table)

Table 2: Digital Audio Selection Table

Default Audio Mode	Digital Audio Selection Options
AC-3	1. Bitstream 2. PCM (stereo) 3. Off
MPEG-2	Same as above
MPEG-1	1. PCM (stereo) 2. Off

*Bitstream: select this if your TV or A / V receiver has a digital audio input and can decode Dolby Digital

*PCM (stereo): select this if your TV or A / V receiver has a digital audio input but can not decode Dolby Digital

*Off: select this if you want the digital audio output to mute when a Dolby Digital program is being received.

7. **Downmix-Surround:** You can select Downmix-Surround on/off by pressing ◀/▶ and OK
   On: Surround information will be included in stereo output (Lt/Rt)
   Off: Pure stereo audio output (L/R)

8. **Audio Balance:** You can adjust the value from L+7 to R+7, 15 selections. The selection "0" means balanced (equal level) output on the two front speakers.

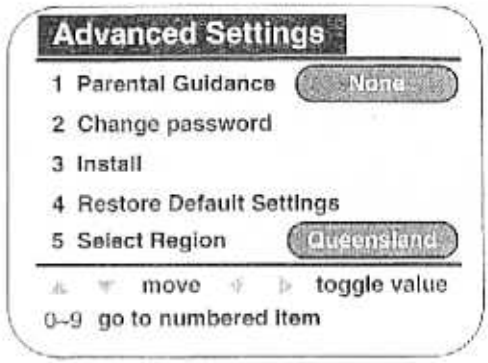
6.4 Advanced Settings

Different from Preference, in segment 6.3, the settings in this segment are related to programming your receiver. Again, some of the settings, especially 3, may require assistance from your Service Provider.

1. Parental Guidance

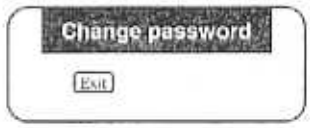
Using ◀/▶ you may select the limit amount; None, Block G, Block PG, Block M, Block MA, Block AV, Block RA, and Block all. Your receiver will automatically block programs that are unsuitable to children under the age limit you have set. For example, if you choose "Block PG" and the programs with rating equal to or above PG, then the receiver will ask viewer to enter password before viewing that program.

However, not all transmissions carry the signal to activate this function.



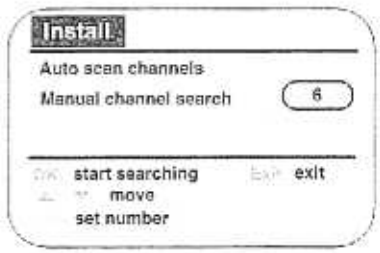
2. Change password

From here you can change the password. Once the new password is set DO NOT FORGET IT! Without the password, you cannot access any functions that require you to provide the correct password! The default password is 0000. If you forget your password, please contact customer service for help.



3. Install

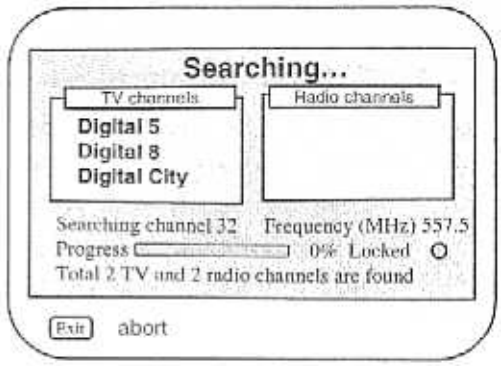
When the receiver is set up, conduct the channels search by selecting the "Auto scan channels" function.



- **Auto Scan channels**

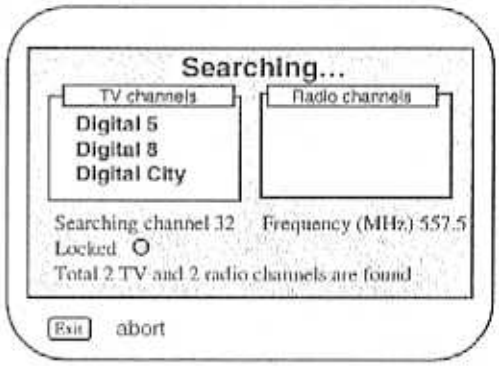
Auto Scan channels provides an easier way to conduct channel search. It does not require you to enter any particular parameter. This function is strongly recommended for regular users. However, user should be aware of the fact that all existing channels will be removed as soon as you confirm start of auto scan.

In the **Auto Scan channels** OSD, all channels found will be listed. The channel search may take a few minutes. If you abort auto scan during the scan process, some channels may not be available to you.



- **Manual Channel Search**

  In the "Manual channel search" window you can set the channel search by pressing left or right button then OK to select the physical channel you want to search.

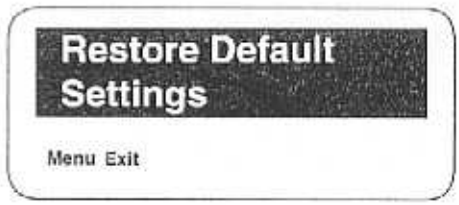


4. **Restore Default Settings**

   If you wish to reset all previous new settings, you can use this feature to do so. Once you decide to restore default (factory) settings, all previous settings will be lost. Please be very careful before you confirm this action.

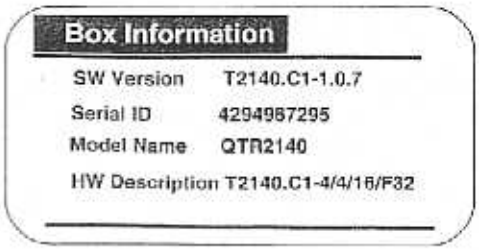
5. **Select Region**

   Using ◀/▶ you may select the relevant region: New South Wales, Victoria, Queensland, South Australia, Western Australia, Tasmania, North Territory. This setting will give you the correct current time when the receiver is in Stand-By mode.



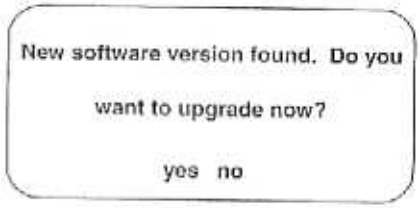
6.5 Box Information

From here, you can get general information about the Receiver ID, software and hardware version on which it is operating.



6.6 Software download

When your set-top box detected new software, there will be a pop-up menu showing on TV, we suggest you to select YES for software download. After selecting YES, the system will ask you not to press any button or power off during the download process. The download process requires around 10 minutes. After completion of SW upgrade, STB shall reboot itself with the new software.



7 Glossary

- **A/V:** A connector for the transmission of audio, video and status signal.
- **Channel Banner:** A small window with simple navigation tools to displays information about individual channels.
- **Menu:** An onscreen display offering a list of commands to select from.
- **Normal viewing:** The state of your receiver when no menus or windows are displayed on the screen, and the current channel is tuned.
- **Parental Lock:** A feature enabling parents to "lock" programs that they consider unsuitable for children's viewing. A "locked" program can only be "unlock" with the PIN number.
- **Password:** A personal 4-digit number for controlling specific features of the receiver including access to locked channels.
- **Program Guide:** The instantaneously and continuously updated electronic program guide for quick and easy reference or program selection.
- **Reminder:** Message displayed on the screen informing viewers that a booked program is about to start.
- **Service:** Also called a channel to which a TV or receiver is tuned. A service provider offers one or more services.
- **Service Provider:** the Company that provides one or more services to the subscribers or viewers.
- **Integrated Receiver Decoder (IRD):** A device that is capable of decoding and tuning digital signals and converting these signals into a format that is understood by your TV set. Aside from decoding signals, it also verifies access rights.
- **Standby mode:** A condition in which your receiver allows retrieval of up-dated information from input signals.
- **VCR:** Abbreviation for Video Cassette Recorder.

8 Troubleshooting

Problem	Possible causes	What to do
The display on the panel does not light up/is not lit	Power Mains cable is not connected	Check that the mains cable is plugged in to the power socket
No sound or picture	The A/V cord is not properly placed	Check the cable connections and other equipment connected to your receiver
	Wrong selection of output mode	Try another output configuration
The remote control is not working	Battery exhausted	Change the batteries
	Florescent light interfering with the remote control	Switch off the light
	Remote control is incorrectly aimed	Aim the remote control at the receiver

What to do if you can't solve the problem

If you have tried all of the actions suggested above, without solving the problem, please contact the Panasonic Customer Care Centre on **132 600** for additional help.

9 Technical Specifications

Terrestrial Tuner/Demodulator	Input frequency	VHF, UHF Band
	Standard	DVB-T (ETSI 300 744)
	Channel Bandwidth	7MHz, Australian Channel
	COFDM System	2K, 8K carrier Hierarchical supported
	Demodulation type	QPSK, 16QAM, 64QAM
	Guard Interval	1/32, 1/16, 1/8, 1/4 active symbol duration
	FEC	1/2, 2/3, 3/4, 5/6, 7/8
System	CPU	32-bit RISC
	Transport	DVB Demultiplexer
	Flash memory	4 MB
	System memory	4 MB
	EEPROM	32 KB
Video	Standard	MPEG-1 ISO/IEC 11172-2 and MPEG-2 MP@ML and MP@HL ISO/IEC 13818-2
	Video Memory SDRAM	Up to 16 MB
	Field / Frame rate	50 / 25 Hz
	HD/SD, interlaced/progressive output mode supported	1080i(1125)/ 576P / 576i / 1080i(1250)
	Aspect Ratio	4:3, 16:9 and Letter box supported
Audio	Standard	MPEG-1 ISO/IEC 11172-3 layer I and layer II / MPEG-2 ISO/IEC 13818-3 Dolby Digital AC-3
	Sampling rate	32, 44.1, 48 and 96 KHz
	Digital Audio Output format	IEC-60958 / IEC61937
Rear panel interface	RF input connector / Loop through Output	IEC type 75 ohm
	CVBS/ Stereo Output	2 sets of RCA connectors
	Y/C output	S-VHS
	Y/Pb/Pr component video	RCA connectors
	R/G/B/HS/VS	RCA connectors DB-15(Female)
	Digital Audio SPDIF	Coaxial / Optical
	Serial port	RS-232 (Female, DB-9)
	Mode Selection Switches	SW1, SW2
User interface	Front panel	8 Keypads, 7-segment (4 digits) display and 3 LED indicators IR Sensor
Power requirements	Mains input voltage	100-250VAC~
	Mains input frequency Power consumption	50/60 Hz Normal operation 15W Standby mode 5W max. Max. 33W
Environmental Condition	Operating Temperature	32°F~108°F (0~40°C)
	Dimension (WxDxH) Weight	365 x 250 x 60 (mm) 2.45 kg

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